

The Glasgow study shows the importance of not smoking the wrong brand to avoid "getting a slagging" from friends and risk not conforming. The child who described placing cheap unacceptable cigarettes into the box of an acceptable brand shows us that it is the image of the cigarette that preoccupies young people. By contrast the adults in the study regularly switched brands and were indifferent to what being seen with any brand might convey to others.

Cryptic copy in tobacco advertising has a long history, epitomised by the Benson and Hedges and Silk Cut campaigns, which have no text. Like the Reg campaign such advertisements go on working long after the page has been turned or the billboard passed. They succeed in tantalising the viewer to discuss them with friends, discriminating between those who "get it" and those gormless souls who don't.

Health professionals' views of the likely appeal of health education messages frequently differ from those of their intended audiences.⁷ Teenagers are unimpressed by sports stars and wholesome pop singers who announce to no one's surprise that they don't smoke.

The paper by Hastings *et al* is a classic example of how research can scupper tobacco advertising.¹ Similar partnerships between researchers and policy advocates have led to campaigns popular with children being banned. The comic actor Paul Hogan was barred from advertising Rothmans' Winfield cigarettes in Australia after research showed that he was immensely popular with 12-14 year olds.⁸ Philip Morris's attempts to popularise small affordable packs of 15 cigarettes with a campaign showing the pack tucked into the underwear of a lissome girl were also halted when researchers in Adelaide showed that 57% of young smokers had bought a pack in the previous month, compared with only 8% of adult smokers.⁹

American teenagers seem similarly susceptible to cigarette advertising. A study by the US Centers for Disease

Control and Prevention found that the three most heavily advertised brands of cigarettes had 86% of the teenage market but only 35% of the overall market. Nevertheless attempts to get Joe Camel (Reg's hipper transatlantic cousin) removed from advertisements for Camel cigarettes have so far failed.¹⁰

For all its pious rhetoric about being disinterested in the youth market, the tobacco industry must know the considerable effect that advertising has on children. Young people represent its commercial future. It has gone into paroxysms over proposals to have all cigarettes sold in plain, generic packs following research showing that children find such packs unappealing.^{11,12} Reg has been shuffled off. But as long as tobacco advertising remains there will be many equivalents of Reg. Tobacco advertising will continue to appeal to teenage aspirations in ways that the somnolent authors of voluntary codes of advertising restraint never dreamt of.

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Oxytocin and sexual behaviour

A new chapter in psychopharmacology may be beginning

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Like many other neuropeptides, oxytocin was known until quite recently only as a peripheral hormone, secreted from the pituitary gland. But immunocytochemistry has shown that oxytocin is present in a range of neurones and axons in the brain. These are mostly in the limbic system but also in the brain stem and spinal cord.¹ Oxytocin receptors are also present on other neurones.² Clearly oxytocin must have actions other than the familiar ones of promoting parturition and ejection of milk.

About 10 years ago it was found that infusing oxytocin into the brains of non-pregnant female rats rapidly induced maternal behaviour towards young pups.³ This was striking as treatments that attempted to mimic the supposed endocrine conditions of late pregnancy (treatment with oestrogen and progesterone, sometimes with added prolactin) had proved relatively ineffective. Similar findings have been reported in ewes, which are also hostile to offspring other than their own.⁴ It seemed that the central (behavioural) effects of oxytocin might correspond to its peripheral actions—and represent a chemical "code" synchronising behavioural and physiological mechanisms for the important adaptive role of maternity. This inter-

pretation was strengthened when similar coordinating roles became apparent for other neuropeptides, as more and more were found forming chemically identifiable neural systems in the brain.⁵

But there is more to the oxytocin story. Reports began to appear showing that mating increased blood oxytocin concentrations transiently in animals and humans.⁶ Sure enough, when oxytocin was infused into the brains of oestrogen treated female rats (which are not very sexually receptive) their sexual activity was considerably stimulated.⁷ A compound that blocks the action of oxytocin was claimed to reduce sexual responsiveness in rats given hormones (oestrogen and progesterone) that otherwise promote responsiveness.⁸ Similar, though less convincing, results have been reported in male rats.

Reflecting, perhaps, the need to reconcile oxytocin's effects on both sexual and maternal behaviour (and the fact that males also secrete oxytocin), the proposal was made that it promoted "bonding." Attempts have been made to show that the brains of species of vole that are habitually monogamous have higher concentrations of oxytocin (or its receptor) than polygamous species.⁹ The temptation to

extrapolate these results to humans has proved difficult to resist.

The drug point in this week's journal by Anderson-Hunt and Dennerstein is the first to suggest that oxytocin can stimulate sexual behaviour in humans (p 929).¹⁰ It has several remarkable features. One reason why the psychopharmacology of peptides in humans has been slow to develop is that peptides given peripherally including oxytocin¹¹ do not usually cross the blood-brain barrier easily.

So how could oxytocin reach the brain of the patient to stimulate her sexual desire? One explanation might be that the effect was a peripheral one; but thousands of women have been given this compound intravenously to induce labour—surely someone would have reported it before, even though endocrine (and environmental) conditions of women in whom labour is induced are different from those of the woman described here. Several years ago reports suggested that substances given as intranasal sprays entered the brain by a privileged route.¹² Though this has proved difficult to establish with certainty, it might be important that, in the case reported, oxytocin was sprayed into the nose.

But there is another oddity. The aphrodisiac effects of the spray were seemingly observed only while the patient was taking the contraceptive steroid levonorgestrel. Levonorgestrel has both progestogenic and oestrogenic actions.¹³ In experiments the behavioural effects of oxytocin are relatively slight in the absence of oestrogen. But it must be presumed that the patient secreted her own oestrogen after she stopped taking levonorgestrel. However, levonorgestrel—like some other 19-norprogestins—also has appreciable androgenic activity.¹⁴ Clinical and experimental evidence exists that androgens can stimulate sexual behaviour in women and female monkeys¹⁵⁻¹⁷; might this have been a factor? Is there synergy between androgens and oxytocin in human sexuality?

As the authors point out, overinterpretation of a single, uncontrolled case should be resisted. We know enough of

the hazards of premature conclusions, and of the requirements for well designed studies on substances suspected of having appreciable behavioural effects in humans, to want to see more acceptable evidence. But there is a new psychopharmacology waiting, provided we can develop compounds that reach the brain and act specifically on individual systems that contain peptides. There are signs that this age is about to begin.

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Opportunities for non-fundholders

Nottingham shows the way

Nearly 25 000 general practitioners currently remain non-fundholders¹ (Scottish Office and Northern Ireland Office, personal communication). They include those who find the prospect of fundholding unacceptable, impractical, or irrelevant but who remain committed to securing the highest quality care possible for their patients.² Both the General Medical Services Committee³ and the Royal College of General Practitioners⁴ have encouraged general practitioners to use the internal market to the benefit of their patients, and participation on commissioning or advisory groups has provided opportunities for translating these ambitions into action.

The Nottingham Non-Fundholders Group was formed to make the best use of the opportunities provided by the purchaser-provider system to benefit patients; on p 930 members describe its formation and early achievements.⁵ It is not alone; the recently formed National Association of Commissioning General Practitioners identified 42 groups after a single letter to the *BMJ*.⁶ Those expressing initial interest represented over 4000 general practitioners

responsible for the care of 7.6 million people. The association is aware of a further 25 groups (R Singer, personal communication).

As Gaffy and Williams argued, to permit effective purchasing on behalf of non-fundholders, general practitioners must be prepared to cooperate with each other and to mandate representatives to conduct day to day negotiations with purchasing agencies.⁷ What is needed is a cadre of committed, enthusiastic general practitioners, determined to make the system work. Many of these doctors will need to acquire new skills⁸ to enable them to participate effectively and to take a broader view of health care than the traditional and proper preoccupation with the patient of the moment. Effective purchasing will not become a reality unless purchasing agencies are prepared to work closely with general practitioners and to act on their advice unless there are explicit and compelling reasons to the contrary.

Purchasing agencies must recognise that participating general practitioners will need managerial and financial

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